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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 1206425F I Space Situation Awareness Systems							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	0.000	30.116	23.945	48.448	0.000	48.448	83.075	108.621	29.967	30.579	0.000	354.751
65A006: Space Based Space Surveillance	0.000	28.404	23.945	48.448	0.000	48.448	83.075	108.621	29.967	30.579	0.000	353.039
65A026: C-Band Radar	0.000	1.712	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.712
Program MDAP/MAIS Code: 328												
<p>Note</p> <p>In FY2018, PE 0604425F, Space Situational Awareness Systems efforts were transferred to PE 1206425F, Space Situational Awareness Systems due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE 1206425F.</p> <p>In FY2016, Project 65A026, C-Band Radar AML-exempt activity was completed.</p> <p>A. Mission Description and Budget Item Justification</p> <p>Space Situational Awareness (SSA) is knowledge of all aspects of space related to operations as described in the approved SSA Initial Capabilities Document (ICD). As the foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This Program Element (PE) develops new Air Force sensors, and improved information capabilities for integration across the SSA network; it also includes developmental planning and technology forecasting for future blocks and emerging needs.</p> <p>A companion program element, 1203940F, Space Situational Awareness Operations, fields, upgrades, operationalizes, operates, and sustains existing sensors and information integration capabilities within the SSA network. An additional companion program element, 1203614F, JSpOC Mission System, processes surveillance of all space objects and activities, maintains detailed reconnaissance of space assets, fuses space data, maintains awareness of cooperative space assets, and allows JFCC-Space to conduct integrated C2 of space forces.</p> <p>Development activities are necessary to deploy new advanced sensors capable of searching for and identifying threats, tracking the expanding number of debris objects on orbit, as well as the increasing number of satellites launched by other nations, many of which are smaller and more capable than previous spacecraft. These activities are also required to better integrate the disparate elements of SSA in order to enable rapid and responsive space operations.</p> <p>This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.</p>												

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)		PE 1206425F I Space Situation Awareness Systems			
B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	29.288	23.945	48.309	0.000	48.309
Current President's Budget	30.116	23.945	48.448	0.000	48.448
Total Adjustments	0.828	0.000	0.139	0.000	0.139
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.800	0.000			
• SBIR/STTR Transfer	-1.972	0.000			
• Other Adjustments	0.000	0.000	0.139	0.000	0.139

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>				Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
65A006: <i>Space Based Space Surveillance</i>	0.000	28.404	23.945	48.448	0.000	48.448	83.075	108.621	29.967	30.579	0.000	353.039
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification <p>The Space-Based Space Surveillance (SBSS) Block 10 satellite was launched September 2010 with a design life through 2018 and an extended operational capability through 2020. The SBSS Follow-On (SBSS FO) program will develop and deliver a system to continue providing space object surveillance from space post SBSS Block 10 End-of-Life. SBSS FO requirements are based upon the current Space Situational Awareness (SSA) Initial Capabilities Document (ICD) architectural requirements focused on protecting High Value Assets (HVAs). SBSS FO will provide the capability to search, detect, and track objects from a space-based sensor for timely custody and event detection. Surveillance from space augments and overcomes existing ground sensor limitations with timely 24-hour above the weather collection of satellite metric data only possible with a space-based sensor and then communicates its findings to the Joint Space Operations Center (JSpOC), National Space Defense Center (NSDC), and other classified users.</p>												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2016	FY 2017	FY 2018	
Title: SBSS Follow-On (SBSS FO) Design & Development Description: Performs space based SSA analysis, research, and development for the SBSS FO system. FY 2016 Accomplishments: Conducted Pre-Milestone B activities and received acquisition strategy approval. FY 2017 Plans: Conduct Pre-Milestone activities, complete Single Best Estimate, release RFP, and begin source selection. FY 2018 Plans: Award contract and hold preliminary design review. Begin development of SBSS FO with entry into Engineering and Manufacturing Development phase. Perform risk reduction activities and analyses based on threat paradigm analyzed/out-briefed by the Space Security and Defense Programs (SSDP).									28.404	23.945	48.448	
Accomplishments/Planned Programs Subtotals									28.404	23.945	48.448	
C. Other Program Funding Summary (\$ in Millions) N/A Remarks												

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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>	Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>
<p><u>D. Acquisition Strategy</u></p> <p>The Acquisition Strategy was approved to minimize the space-based SSA gap post-SBSS Block 10. The SBSS FO anticipates Initial Launch Capability (ILC) in FY 2022 with Full Operational Capability (FOC) by FY 2022. The SBSS FO Material Development Decision was approved by the Milestone Decision Authority on 5 April 2016. The Acquisition Strategy Panel (ASP) was completed with the MDA on 29 August 2016. To satisfy the SSA architecture needs, the SBSS FO program requirements have changed to become more focused and operationally challenging and were updated in August 2016 and December 2016. The SBSS FO program remains an Air Force program but will leverage another acquisition organization to fulfill SBSS FO space segment and telemetry, tracking, and commanding (TT&C) portions of the program in order to further National Security Space objectives. Mutual investment for the non-recurring engineering (NRE) cost enables the potential for a larger initial constellation buy and lower unit costs. The Air Force will determine the approach to meet mission processing requirements and will develop the ground architecture in collaboration with various organizations.</p> <p><u>E. Performance Metrics</u></p> <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>				Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SBSS Follow On Prime Development	TBD	TBD : TBD	0.000	0.000	Mar 2016	14.094	Sep 2017	36.824	Dec 2017	0.000		36.824	196.859	247.777	-
Technical Mission Analysis	Various	Various : Various	0.000	21.424	Oct 2015	3.309	Oct 2016	3.385	Dec 2017	0.000		3.385	13.351	41.469	-
Subtotal			0.000	21.424		17.403		40.209		0.000		40.209	210.210	289.246	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	C/FFP	Aerospace Corp. : Los Angeles, CA	0.000	0.260	Oct 2015	0.784	Oct 2016	0.808	Oct 2017	0.000		0.808	4.712	6.564	-
A&AS	Various	Various : TBD	0.000	6.698	Oct 2015	5.703	Oct 2016	7.376	Oct 2017	0.000		7.376	36.897	56.674	-
Other Support	Various	Various : TBD	0.000	0.022	Oct 2015	0.055	Oct 2016	0.055	Oct 2017	0.000		0.055	0.423	0.555	-
Subtotal			0.000	6.980		6.542		8.239		0.000		8.239	42.032	63.793	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	28.404		23.945		48.448		0.000		48.448	252.242	353.039	-

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Appropriation/Budget Activity 3600 / 5			R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>			Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>				
	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>			Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pre-Phase B Acquisition Planning	■																											
Acq Strategy, RFP Dev and Source Selection	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
MDD			■	■																								
Contract Award										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Tech Dev / Engineering and Manufacturing Development / Production										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Preliminary Design Review (PDR)															■	■	■	■	■	■	■	■	■	■	■	■	■	■
Milestone B															■	■	■	■	■	■	■	■	■	■	■	■	■	■
Critical Design Review (CDR)																	■	■	■	■	■	■	■	■	■	■	■	■
Launch																											■	■

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>	Project (Number/Name) 65A006 / <i>Space Based Space Surveillance</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Pre-Phase B Acquisition Planning	1	2016	1	2016
Acq Strategy, RFP Dev and Source Selection	1	2016	2	2018
MDD	3	2016	3	2016
Contract Award	2	2018	2	2018
Tech Dev / Engineering and Manufacturing Development / Production	3	2018	4	2022
Preliminary Design Review (PDR)	3	2019	3	2019
Milestone B	4	2019	4	2019
Critical Design Review (CDR)	3	2020	3	2020
Launch	4	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>				Project (Number/Name) 65A026 / <i>C-Band Radar</i>			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
65A026: <i>C-Band Radar</i>	0.000	1.712	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.712
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification
A Memorandum of Understanding (MOU) between the United States Air Force and the Australian Department of Defence was signed by the United States Secretary of Defense and the Australian Minister for Defence on November 14, 2012 to support this international effort to provide an improved space situational awareness capability in the Australian geographic area. The MOU includes description of the need for Australian funding for part of the relocation project. The project will relocate a C-Band radar to Harold E. Holt Naval Communications Station (HEH NCS) in Australia and upgrade it to perform a Space Situational Awareness (SSA) mission. When completed, the radar will provide data for catalog maintenance, space object identification, and support for special events (e.g., space launches, satellite breakups, and maneuvers).

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018
Title: C-Band Radar	1.712	-	-
Description: Relocates a C-Band Radar to Harold E. Holt Naval Communications Station (HEH NCS) in Australia and upgrades it to perform a Space Situational Awareness (SSA) mission.			
FY 2016 Accomplishments: Completed Developmental Test and Evaluation in March; completed Operational Test and Evaluation in August, and Initial Operating Capability (IOC) in December 2016.			
Accomplishments/Planned Programs Subtotals	1.712	-	-

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• SPAF: BA01: SSPARE: <i>Spares and Repairs</i>	4.868	7.613	4.873	0.000	4.873	0.000	0.000	0.000	0.000	0.000	17.354

Remarks

D. Acquisition Strategy
This project will utilize a mix of experienced contractors, Federally Funded Research and Development Companies, and Air National Guard resources to relocate the C-Band Radar to Australia and upgrade to perform SSA mission.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>	Project (Number/Name) 65A026 / <i>C-Band Radar</i>

The MOU between the United States Air Force and the Australian Department of Defence includes the need for Australian funding for part of the relocation project. Site renovation in Australia began in FY2013 as Australian funding became available.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Appropriation/Budget Activity 3600 / 5							R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>					Project (Number/Name) 65A026 / <i>C-Band Radar</i>			

Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-Band Radar Upgrades	Various	Various : TBD	0.000	0.818	Oct 2016	0.000		0.000		0.000		0.000	0.000	0.818	15.665
Subtotal			0.000	0.818		0.000		0.000		0.000		0.000	0.000	0.818	15.665

Remarks
 Funding provided to Instrumentation Radar Support Program (IRSP) contract, Radar Open Systems Architecture (ROSA) and Space Surveillance Support Software (S4) upgrades contract, Massachusetts Institute of Technology/Lincoln Laboratory contract, and Air National Guard support to complete the C-Band Radar Project.

Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DISA	WR	DISA : Ft. Meade, MD	0.000	0.005	Jun 2016	0.000		0.000		0.000		0.000	0.000	0.005	0.005
Subtotal			0.000	0.005		0.000		0.000		0.000		0.000	0.000	0.005	0.005

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test, Operational Test, & Initial Operating Capability Test	Various	Various : Various	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.613
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.613

Remarks
 Test support is being provided by the 96th Test Wing Eglin AFB and 17th Test Squadron Schriever AFB.

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Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	MIPR	Aerospace : Los Angeles, CA	0.000	0.189	Oct 2015	0.000		0.000		0.000		0.000	0.000	0.189	-
A&AS	Various	Various : Los Angeles, CA	0.000	0.525	Oct 2015	0.000		0.000		0.000		0.000	0.000	0.525	2.889
Other Support	Various	Various : Various	0.000	0.175	Oct 2015	0.000		0.000		0.000		0.000	0.000	0.175	-
Subtotal			0.000	0.889		0.000		0.000		0.000		0.000	0.000	0.889	-

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.712	0.000	0.000	0.000	0.000	0.000	1.712	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)		Project (Number/Name)	
3600 / 5		PE 1206425F / Space Situation Awareness Systems		65A026 / C-Band Radar	

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Test																												
Operational Acceptance (Sep 2016)																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206425F / <i>Space Situation Awareness Systems</i>	Project (Number/Name) 65A026 / <i>C-Band Radar</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Test	1	2016	4	2016
Operational Acceptance (Sep 2016)	4	2016	4	2016